

NFPA DESIGNATION 704

HAZARD RATING	- HEALTH	1
4=Extreme		
3=High	- FIRE	0
2=Moderate		
1=Slight	- REACTIVITY	0
0=Insignificant		
	- SPECIFIC HAZARD	NONE



MATERIAL SAFETY DATA SHEET

SECTION 1 NAME AND PRODUCT

MANUFACTURER'S NAME: SUNNEN PRODUCTS COMPANY CONTACT: Terry Heller
 ADDRESS: 7910 Manchester Ave. EMERGENCY PHONE NO: 314-781-2105
 St. Louis, Mo. 63143 APPROVED BY: Terry Heller
 United States of America TITLE: Manager, Materials R/D
 DATE: August 15, 1987

TRADE NAME, COMMON NAME OR SPECIFICATION: Sunnen Superabrasive Stone:NR, DR, NV or DV (Example KB-NR51).
 CHEMICAL FAMILY: Product is a Superabrasive Honing Stone containing various fillers and phenolic and/or polyimide binders (thermosetting mixtures), mounted on a steel holder. CLASSIFICATION: Machine, Machine Parts. D.O.T. SHIPPING CLASS: Class 85

SECTION 2 HAZARDOUS INGREDIENTS/IDENTITY (PER 29 C.F.R. 1910.1200(g))

COMMON NAME	CHEMICAL NAME OF COMPONENTS	CAS NO.	OSHA PEL mg./cu. m.	ACGIH TLV-TWA mg./cu. m.	CARCINOGENIC
CHROME OXIDE	CHROMIUM OXIDE	1308-38-9	1.0	.05	Y
COPPER	COPPER	7440-50-8	1.0 / 0.1 fume	1.0 / 0.2 fume	N
TIN	TIN	7440-31-5	2.0	2.0 / 2.0 fume	N
DIAMOND	CARBON	7440-44-0	3.5 as Carbon Black	3.5 as Carbon Black	N
MANGANESE	MANGANESE	7439-96-5	5.0	5.0 / 1.0 fume	N
ALUMINUM POWDER	ALUMINUM	7429-90-5	NONE	10	N
MOLYBDENUM	MOLYBDENUM	7439-98-7	15	10	N
MOLYBDENUM DISULFIDE	MOLYBDENUM DISULFIDE	1317-33-5	15	10	N
NICKEL	NICKEL	7440-02-0	1.0	1.0	Y
PHOSPHOROUS	PHOSPHOROUS	7723-14-0	0.1	0.1	N
SILICON POWDER	SILICON	7440-21-3	NONE	5.0 as respirable dust	N
GRAPHITE	GRAPHITE	7782-42-5	15 MPPCF	5.0 (Total Dust)	N
LIME	CALCIUM OXIDE	1305-78-8	5.0	2.0	N
IRON OXIDE	IRON OXIDE FUME	1309-37-1	10	5.0	N
ALUMINUM	ALPHA-ALUMINA	1344-28-1	15 (Total Dust)	10 (Total Dust)	N
CRYSTOLON	SILICON CARBIDE	409-21-2	15 (Total Dust)	10 (Total Dust)	N
SILVER	SILVER	7440-22-4	.01	0.1	N
CRYOLITE	SODIUM FLUOALUMINATE	15096-52-3	NAIF	2.5	N
COBALT	COBALT	7440-48-4	0.1	.05	N
CARBIDE	TUNGSTEN CARBIDE	12070-12-1	5.0	5.0	N
FURFURAL	FURFURAL	98-01-1	5.0 PPM	8.0	N
CRYSTALLINE QUARTZ	CRYSTALLINE QUARTZ	14808-60-7	0.3	0.1	N
CURED PHENOLIC OR POLYIMIDE	CURED PHENOLIC OR POLYIMIDE	NAIF	10	10	N
FIBROUS GLASS DUST	FIBROUS GLASS DUST	16997-17-3	15	10	N
EPOXY	CURED RESIN	NAIF	NAIF	NAIF	N

(1) CERTAIN COMPOUNDS OF CHROMIUM, NICKEL AND COBALT HAVE BEEN IDENTIFIED AS SUSPECT HUMAN CARCINOGENS BY I.A.R.C., N.T.P. ANNUAL REPORT. MPPCF=Millions of particles per cubic foot of air. PPM=Parts/Million. NAIF=No applicable information found. FOR FURTHER SAFETY AND HEALTH INFORMATION REGARDING THE COMPOSITION OF THIS MATERIAL CONTACT SUNNEN PRODUCTS, INDUSTRIAL SALES DEPARTMENT.

SECTION 3 PHYSICAL & CHEMICAL CHARACTERISTICS

SPECIFIC GRAVITY (WATER=1)-----7 (APPROX)
 MELTING POINT-----428 F (220 C) APPROX.
 PERCENT VOLATILE BY WEIGHT-----NOT VOLATILE
 VAPOR PRESSURE (mm Hg)-----NOT VOLATILE
 VAPOR DENSITY (AIR=1)-----NOT VOLATILE

EVAPORATION RATE-----NOT VOLATILE
 SOLUBILITY IN WATER-----NOT SOLUBLE
 REACTIVITY IN WATER-----NOT REACTIVE
 APPEARANCE AND ODOR-----SOLID OBJECT

SECTION 4 SPECIAL PRECAUTIONS HANDLING AND STORAGE: NONE Refer to Section 7.

SECTION 5 CORROSIVITY AND REACTIVITY DATA STABILITY: Material is stable under normal conditions of transport and storage. POLYMERIZATION: Hazardous polymerization will not occur. INCOMPATIBILITY (MATERIALS TO AVOID): Acids, bases or strong oxidizing agents. HAZARDOUS DECOMPOSITION PRODUCTS: Metal fumes if heated.

SECTION 6 HEALTH, FIRST AID AND MEDICAL DATA. ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE OPERATIONS SUCH AS ABRADING, MELTING, WELDING, CUTTING OR PROCESSING IN ANY OTHER FASHION MAY PRODUCE POTENTIALLY HAZARDOUS DUST OR FUMES WHICH CAN BE INHALED, SWALLOWED, OR COME IN CONTACT WITH THE SKIN OR EYES. Dust or fume may cause irritation to the eyes, nose, or throat; leave a metallic taste in the mouth; result in metal fume fever (flu-like symptoms). Symptoms may be aggravated for sensitive individuals with respiratory conditions (such as emphysema). Persons with light skin, sensitive skin or large amounts of body hair may experience skin disorders from contact with metal fines. ABBREVIATIONS USED IN THE FOLLOWING SECTION: NAIF=NO APPLICABLE INFORMATION FOUND, SKIN=SKIN ABSORPTION, EYE=EYE CONTACT, INHAL=INHALATION, INGEST=INGESTION
ALUMINUM: ACUTE: SKIN: May cause skin irritation. EYE: Dust may cause swelling and injury to the eye. INHAL: Nuisance dust. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: May cause irritation of the mucous membranes of the upper respiratory system. INGEST: NAIF.

ALPHA ALUMINA: ACUTE: SKIN: NAIF. EYE: Dust may irritate eyes. INHAL: Nuisance particulate. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: NAIF INGEST: NAIF.

CARBON: ACUTE: SKIN: May cause irritation. EYE: May cause irritation and swelling. INHAL: May cause irritation to the nose or throat (Bronchitis). INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: As graphite. May produce a progressive and disabling lung disease. Symptoms include headache, coughing, depression, decreased appetite, difficult breathing and the production of black sputum. Individuals may be free of symptoms for many years and then suddenly become disabled. INGEST: NAIF.

CALCIUM OXIDE: ACUTE: SKIN: Irritating and may be caustic to the skin. May produce burns or dermatitis with flaking skin and rash. EYE: Irritating and may be caustic to eye. INHAL: Irritating and may be caustic to the mucous membranes of upper respiratory tract causing inflammation and damage. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: Bronchitis and lung disease. INGEST: NAIF.

CHROMIUM OXIDE: ACUTE: SKIN: Can act as an allergen and cause skin irritation. EYE: May cause irritation. INHAL: Dusts may cause coughing and wheezing, headache, shortness of breath, fever and loss of weight. INGEST: Literature reports the oral toxicity as LD Lo=71mg/kg (Mamsters). CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: Literature reports lung disease with impairment of lung function. Some insoluble chromium compounds are suspected carcinogens. INGEST: NAIF.

COBALT: ACUTE: SKIN: Cobalt can cause an allergy. Literature reports very small quantities have caused allergic sensitivity type dermatitis. Eruptions are usually located in the flexure creases of the elbow, knee, ankles, and neck. Cross sensitization can occur between cobalt and nickel and cobalt and chromium. EYE: May cause irritation. INHAL: Cobalt dust inhalation may cause an asthma-like disease characterized by coughing and difficult breathing. INGEST: Literature reports the oral toxicity to be LD Lo=1500 mg/kg (rats). Ingesting cobalt dust can cause vomiting and diarrhea. A sensation of hotness may occur after ingestion of excessive amounts. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: Inflammation of the lungs that may be reversible and abnormal tissue growth. INGEST: NAIF.

COPPER: ACUTE: SKIN: Changes causing hard or horny skin located on the hands and the soles of the feet has been reported. Copper salts may cause skin irritation (itching, redness and dermatitis). EYE: Copper salts may cause swelling, ulceration and cloudy cornea. INHAL: Melting, grinding, cutting of copper may produce fumes or dust exposure and breathing these fumes or dust may present health hazards. Fumes of copper may cause "Metal Fume Fever" with flu-like symptoms and skin and hair discoloration. Copper dust and fume may cause irritation of the upper respiratory tract, metallic taste in the mouth, and nausea. INGEST: Salts of copper act as irritants producing salivation, nausea, vomiting, stomach pain, bleeding stomach inflammation and diarrhea. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: Ulceration with perforation of the nasal septum. INGEST: Individuals with Wilson's disease (hepatolenticular degeneration) can experience fatal intoxication.

CRYSTALLINE QUARTZ: ACUTE: SKIN: NAIF. EYE: Dust can irritate eyes. INHAL: Literature reports the toxicity as LC Lo=16 MPPCF (Inhalation Mamsters). Cough, shortness of breath, wheezing and repeated non-specific chest illnesses. INGEST: Chemically and biologically inert when ingested. CHRONIC: SKIN: NAIF. EYE: Abnormal tissue growth in the eyes. INHAL: Chronic exposure to crystalline silica dust may cause progressive lung disease (Silicosis). INGEST: NAIF.

PHENOLIC (CURED RESIN): ACUTE: SKIN: NAIF. EYE: NAIF. INHAL: Nuisance dust. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: NAIF. INGEST: NAIF.

CURED RESIN (EPOXY): ACUTE: SKIN: Can cause skin irritation (Dermatitis). EYE: Irritating to the eyes. INHAL: Irritating to the respiratory tract. INGEST: Epoxy oligomers and final resins have low oral toxicities. Literature reports the LD 50-2-19 gm/kg (Rats). Lethal dose in rats depresses the respiratory system. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: NAIF. INGEST: NAIF.

GLASS, FIBROUS OR DUST: ACUTE: SKIN: May cause skin irritation. EYE: May cause eye irritation. INHAL: May irritate the upper respiratory tract. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: Fibers smaller than 3.5 µm. have the ability to penetrate to the air cells of the lung. INGEST: NAIF.

PURFURAL: ACUTE: SKIN: Vapors are irritating to the skin. EYE: Vapors are irritating to the eyes. INHAL: Irritating to the mucous membranes of the upper respiratory tract. Headache, fatigue, itching of the throat, loss of the sense of taste, numbness of the tongue, and tremor. INGEST: NAIF. CHRONIC: SKIN: Irritation (dermatitis) as well as skin sensitization, resulting in allergic contact dermatitis and photosensitivity may develop. EYE: NAIF. INHAL: NAIF. INGEST: NAIF.

IRON OXIDE: ACUTE: SKIN: NAIF. EYE: Dust may irritate eyes. INHAL: NAIF. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: The inhalation of fumes or dust may cause an apparent benign lung disease which is called siderosis. This disease is reported not to be disabling, but makes x-ray diagnosis of other lung conditions difficult or impossible. INGEST: NAIF.

GRAPHITE: ACUTE: SKIN: May cause irritation. EYE: May cause irritation and swelling. INHAL: May cause irritation to the nose or throat (Bronchitis). INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: As graphite. May produce a progressive and disabling lung disease. Symptoms include headache, coughing, depression, decreased appetite, difficult breathing and the production of black sputum. Individuals may be free of symptoms for many years and then suddenly become disabled. INGEST: NAIF.

MANGANESE: ACUTE: SKIN: NAIF. EYE: May cause slight eye irritation. INHAL: Can cause bronchitis and inflammation of lung. Early symptoms of Manganese poisoning include lack of coordination, apathy, anorexia, headache and spasms. Freshly formed fumes can cause fever and chills similar to the flu. INGEST: Early symptoms of Manganese poisoning include lack of coordination, apathy, anorexia, headache and spasms. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL/INGEST: Manganese poisoning is not fatal but may present a large range of nervous system disorders that vary among individuals. Advanced symptoms are similar to classical Parkinson's disease.

MOLYBDENUM: ACUTE: SKIN: NAIF. EYE: May irritate the eyes. INHAL: Inhalation of the dust or fumes of this metal can cause upper respiratory system irritation. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: Literature reports experiments with animals have shown cumulative liver and kidney damage (fatty changes) and blood disorders. INGEST: High dietary intake of molybdenum has been reported to be associated with a gout-like disease and high blood uric acid.

NICKEL: ACUTE: SKIN: NAIF. EYE: Causes eye irritation. INHAL: Nickel is an irritant to the mucous membrane of the upper respiratory tract. INGEST: Literature reports nickel soluble salts are quite toxic and if swallowed may cause giddiness and nausea. CHRONIC: SKIN: Skin sensitization resulting in chronic eczema "Nickel itch". EYE: NAIF. INHAL: Elemental nickel (as deposited from inhalation of nickel carbonyl) and nickel salts may cause cancer (producing an increased incidence of cancer of the lung and nasal passages). Effects on the heart muscle, brain, liver, and kidney have been seen in animal studies. INGEST: NAIF.

PHOSPHOROUS: ACUTE: SKIN: May result in severe burns. EYE: May cause severe irritation or burns. INHAL: Shock may ensue rapidly. INGEST: Literature reports the oral toxicity as LD 50-3030 µg/kg. Shock may ensue rapidly. CHRONIC: SKIN: Systemic poisoning may follow skin burns. Can cause death of tissue of the jaw. EYE: NAIF. INHAL/INGEST: Systemic poisoning. Can affect the function or cause failure of the liver, kidney, heart or blood vessels.

SILICON: ACUTE: SKIN: Physical damage to the skin caused by dust or by cleaning procedures used to remove it. EYE: Dust may irritate eyes. INHAL: Dust may cause physical damage to the mucous membranes or nasal passages. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: May produce x-ray changes in the lungs without disability. INGEST: NAIF.

SILICON CARBIDE: ACUTE: SKIN: Dust may irritate skin. EYE: Dust may irritate eyes. INHAL: Nuisance particulate. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: Progressive lung disease. INGEST: NAIF.

SILVER: ACUTE: SKIN: Small particles of silver can implant in the skin and cause permanent discoloration. EYE: Silver particles can cause permanent discoloration of the eyes causing them to appear blue gray. INHAL: NAIF. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL/INGEST: Inhaling or ingesting silver can cause bluish discoloration of the skin and mucous membranes. May cause permanent coloration of the skin and eyes. Silver accumulates after it enters the body.

SODIUM FLUOALUMINATE: ACUTE: SKIN: NAIF. EYE: NAIF. INHAL: NAIF. INGEST: Acute toxicity by ingestion is known to be very low. Literature reports the toxicity as LD50=200 mg/kg (Oral Rats). CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: Changes in skeleton noted on X-rays. INGEST: NAIF.

TIN: ACUTE: SKIN: May cause skin irritation. EYE: May irritate eyes. INHAL: May irritate the mucous membranes. INGEST: Literature reports the toxicity is low. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: Exposure to the dust or fumes of tin oxide can result in a benign lung disease called stannosis. No tissue reaction or breathing disorder has been associated with this lung condition. INGEST: NAIF.

TUNGSTEN CARBIDE: ACUTE: SKIN: May cause skin sensitization and irritation. EYE: May cause eye irritation. INHAL: May cause temporary or permanent lung damage or affect the central nervous system. INGEST: May affect the stomach, intestine and central nervous system. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL: Permanent lung damage. INGEST: NAIF.

EMERGENCY FIRST AID

INHALATION: Remove to fresh air. If not breathing, begin mouth to mouth resuscitation. Seek medical attention. **EYE CONTACT:** Remove contact lenses (if wearing) and flush eyes with water to remove particulates. Seek medical attention to check for possible irritation. **SKIN CONTACT:** Brush off excess dust. Wash hands with mild non-abrasive soap and water. **INGESTION:** Seek medical attention.

SECTION 7 HANDLING, STORAGE AND USE PROCEDURES. NORMAL STORAGE AND HANDLING: No special procedures required. NORMAL USE: No special procedures required. STEPS TO BE TAKEN IN CASE OF LEAKS OR SPILLS: Treat chips or dust as metal alloys. WASTE DISPOSAL METHODS: Dispose of in accordance with applicable federal, state and local laws, regulations, rules, orders and ordinances.

SECTION 8 PERSONAL PROTECTION INFORMATION. RESPIRATORY PROTECTION: If conditions of use (Dry Honing, cutting, or grinding of stone) give rise to dust use NIOSH approved respirator rated for metal dust to maintain levels of dust below ACGIH TLV and OSHA PEL/TLV levels. VENTILATION: If conditions of use (Dry Honing, cutting, grinding, welding, brazing or soldering of stone) give rise to metal fumes use forced ventilation to maintain levels of fumes below ACGIH TLV and OSHA PEL/TLV levels. SKIN PROTECTION: Not required. EYE PROTECTION: Always wear NIOSH approved safety glasses when honing or operating machinery. OTHER EQUIPMENT: No applicable information found. MEASURES TO BE TAKEN DURING REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT THAT HAS BEEN IN CONTACT WITH THIS MATERIAL: Remove traces of material dust if soldering, welding, brazing, cutting or other process involving ignition sources to prevent a fire hazard.

SECTION 9 FIRE AND EXPLOSION HAZARD DATA. Material in the solid state does not present a fire or explosion hazard. Dust hazards exist under favoring conditions of small particulate size. Dispersion in air and strong ignition source may result in an explosion.

NOTICE

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